

CLAIMS

1. A method for removing boron from silicon characterized by heating metal silicon containing boron as an impurity to its melting point to 2200°C to place it  
5 in a molten state, then adding a solid mainly comprised of silicon dioxide and a solid mainly comprised of one or both of a carbonate of an alkali metal or a hydrate of a carbonate of an alkali metal into said molten silicon so as to form a slag and remove the boron in the silicon.
- 10 2. A method for removing boron from silicon as set forth in claim 1, further comprising discharging the formed slag.
- 15 3. A method for removing boron from silicon as set forth in claim 2, wherein the interval from adding the solid mainly comprised of silicon dioxide and the solid mainly comprised of one or both of a carbonate of an alkali metal or a hydrate of a carbonate of an alkali metal to then discharging the formed slag is 5 minutes or more.
- 20 4. A method for removing boron from silicon as set forth in any one of claims 1 to 3, further comprising simultaneously adding the solid mainly comprised of silicon dioxide and the solid mainly comprised of one or both of a carbonate of an alkali metal or a hydrate of a  
25 carbonate of an alkali metal.
- 30 5. A method for removing boron from silicon as set forth in any one of claims 1 to 3, further comprising separately adding the solid mainly comprised of silicon dioxide and the solid mainly comprised of one or both of a carbonate of an alkali metal or a hydrate of a  
30 carbonate of an alkali metal.
- 35 6. A method for removing boron from silicon as set forth in claim 5, wherein the interval of said addition is within 30 minutes.
7. A method for removing boron from silicon as set forth in claim 1, further comprising adding the solid mainly comprised of silicon dioxide and the solid mainly

comprised of one or both of a carbonate of an alkali metal or a hydrate of a carbonate of an alkali metal, divided into two or more operations.

5           8. A method for removing boron from silicon as set forth in claim 7, further comprising discharging already formed slag, then newly adding the solid mainly comprised of silicon dioxide and the solid mainly comprised of one or both of a carbonate of an alkali metal or a hydrate of a carbonate of an alkali metal.

10           9. A method for removing boron from silicon as set forth in claim 8, wherein the interval from when adding the solid mainly comprised of silicon dioxide and the solid mainly comprised of one or both of a carbonate of an alkali metal or a hydrate of a carbonate of an alkali metal to molten silicon to then discharging the formed slag is 5 minutes or more.

15           10. A method for removing boron from silicon as set forth in claim 8, further comprising performing the process of adding the solid mainly comprised of silicon dioxide and the solid mainly comprised of one or both of a carbonate of an alkali metal or a hydrate of a carbonate of an alkali metal to form slag, then discharging the slag a plurality of times.

20           11. A method for removing boron from silicon as set forth in claim 10, wherein while performing the processing of adding the solid mainly comprised of silicon dioxide and the solid mainly comprised of one or both of a carbonate of an alkali metal or a hydrate of a carbonate of an alkali metal to form slag, then discharging the slag a plurality of times, the concentration of boron in the molten silicon becomes 1 mass ppm or less.

25           12. A method for removing boron from silicon as set forth in claim 1, the amounts of addition of the solid mainly comprised of silicon dioxide and the solid mainly comprised of one or both of a carbonate of an alkali metal or a hydrate of a carbonate of an alkali metal are

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amounts whereby the formed slag does not completely cover the surface of the molten silicon.

13. A method for removing boron from silicon as set forth in claim 1, wherein a mole of silicon in the  
5 silicon dioxide added is 0.05 to 20 times the mole of the alkali element in one or both of the carbonate of an alkali metal and the hydrate of a carbonate of an alkali metal.

14. A method for removing boron from silicon as set  
10 forth in claim 1, wherein the alkali element of one or both of the carbonate of an alkali metal and the hydrate of a carbonate of an alkali metal is one or more of lithium, sodium, and potassium.

15. A method for removing boron from silicon as set forth in claim 14, wherein one or both of the carbonate  
15 of an alkali metal and the hydrate of a carbonate of an alkali metal is one or more of lithium carbonate, sodium carbonate, potassium carbonate, lithium bicarbonate, sodium bicarbonate, potassium bicarbonate, or their  
20 hydrates.

16. A method for removing boron from silicon as set forth in claim 1, further comprising adding an additive for increasing a viscosity of the formed slag.